# Los Angeles Department of Water and Power

# INTEGRATED RESOURCE PLAN

*Presented to: Senate Energy, Utilities and Communications Committee*

*November 19, 2003*

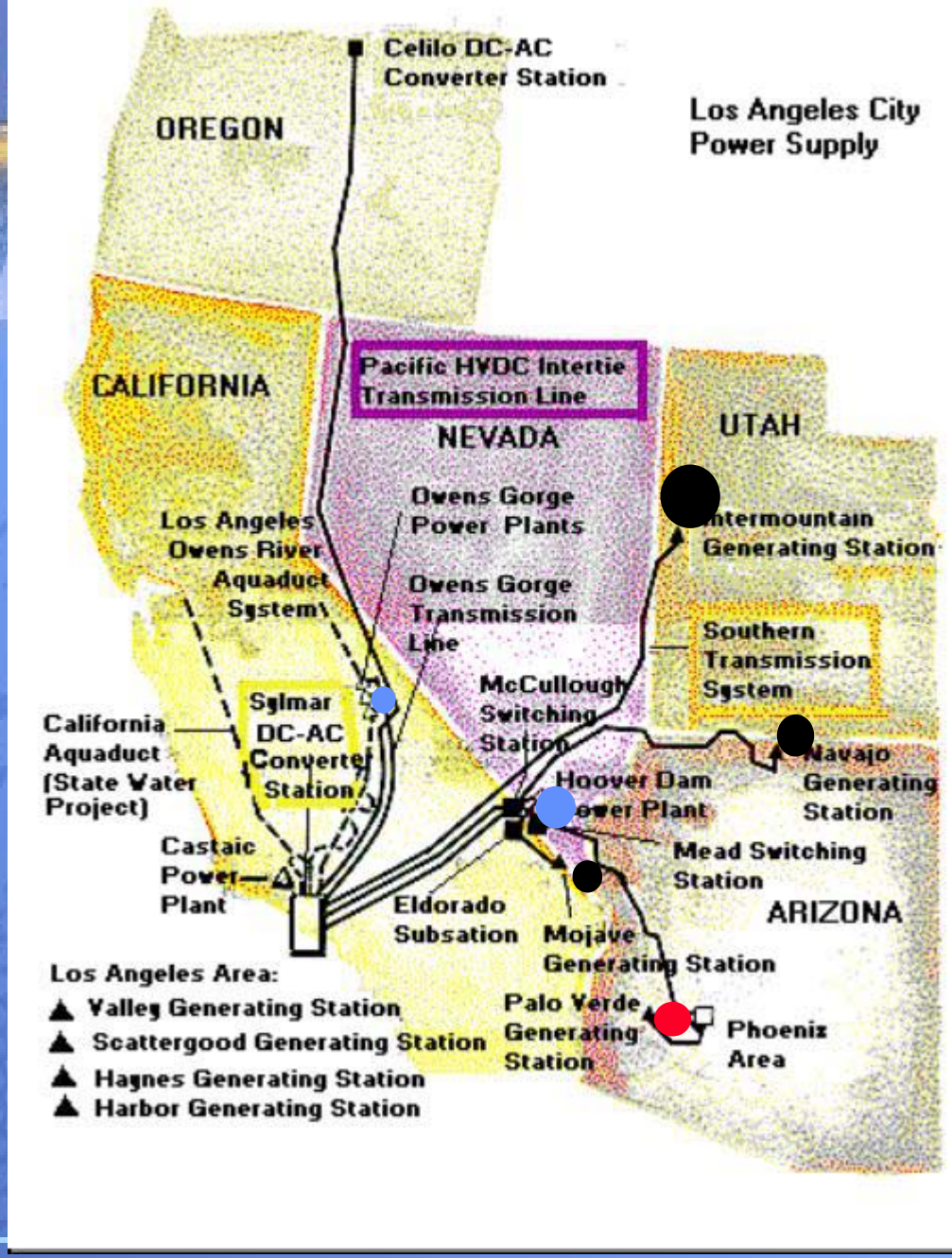
# Overview

- LADWP Power System Background
- Goals and Achievements of LADWP Integrated Resource Plan
- Risk Management and IPP Unit 3
- Considerations of Renewable Portfolio Standard for LADWP
- LADWP Future Outlook

# LADWP System


- Largest municipal utility in US
- 465 sq. mile service territory: LA & Owens Valley
- 3.8 million residents
- 7000 MW generation capacity: hydro, coal, natural gas, nuclear, and renewables
- 25,000 GWH production
- Extensive transmission & distribution network

# LADWP Resources



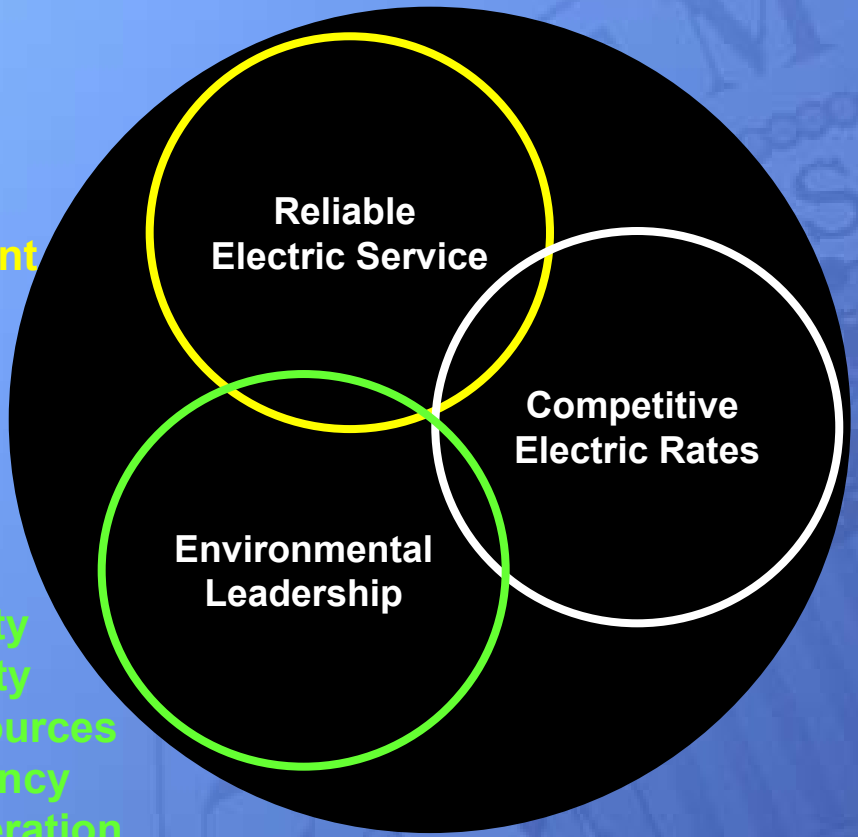
# Goals and Achievements of LADWP Integrated Resource Plan

# The Integrated Resource Plan (IRP)

- IRP is a blueprint that defines future resource plan and development activities of a utility and is developed through a comprehensive planning process.
- In August 2000 the City Council adopted the LADWP's 2000 IRP.
- The 2000 IRP is the basis for the ongoing LADWP resource development activities.

# LADWP Strategic Objectives

Service Obligation
Resource Adequacy
Reliability Standards
Energy Risk Management




Electric Rate
Financial Stability
Contribution to City
Economic Development

Air Quality
Water Quality
Fuel Diversity
Renewable Resources
Energy Efficiency
Distributed Generation

# Integrated Resource Planning Process

System Profile

Situation Analysis/ Goal Setting

System Load Forecast

Demand-Side Alternatives

Transmission Alternatives

Supply-Side Alternatives

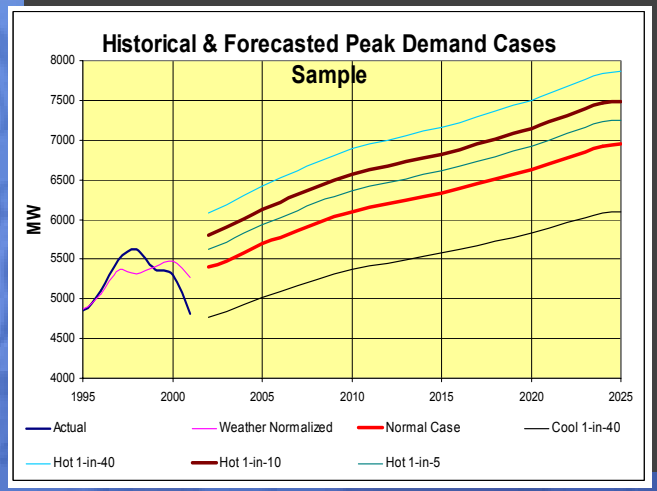
Resource Plan Integration

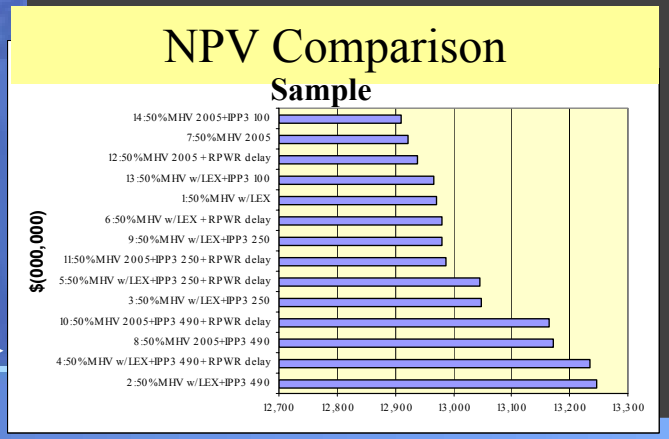
Financial/ Rate Analysis

External Influence

Risk/ Environmental Assessment

Least Cost Plan

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# IRP Goals (1)

- Continue to be self-sufficient in serving the City's customers (native load).
- Provide sufficient generation reserves to meet system reliability requirements.
- Install quick-start natural gas combustion turbine units to support super peak energy uses.
- Enhance black-start capability to mitigate system blackout impacts.

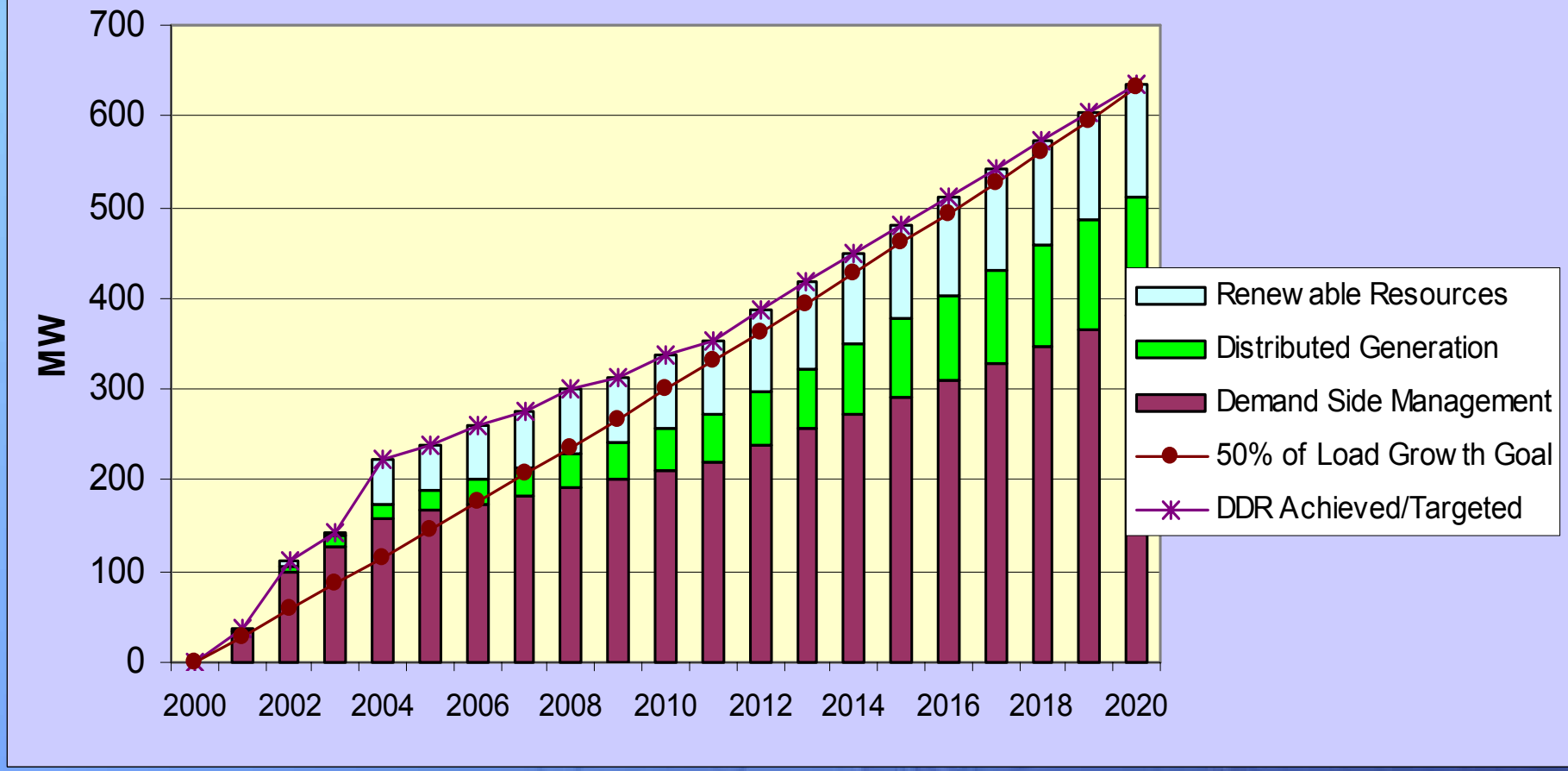
# IRP Goals (2)

- Meet 50% of load growth with conservation & energy efficiency, distributed generation, and renewable resources.
- Reduce $CO_2$ emissions to 5 percent below 1990 levels by 2008-12.
- Support the City's Climate Action Plan of 30% $CO_2$ reduction by 2010.
- Install emission controls to reduce NOx in the LA Basin.

# IRP Goals (3)

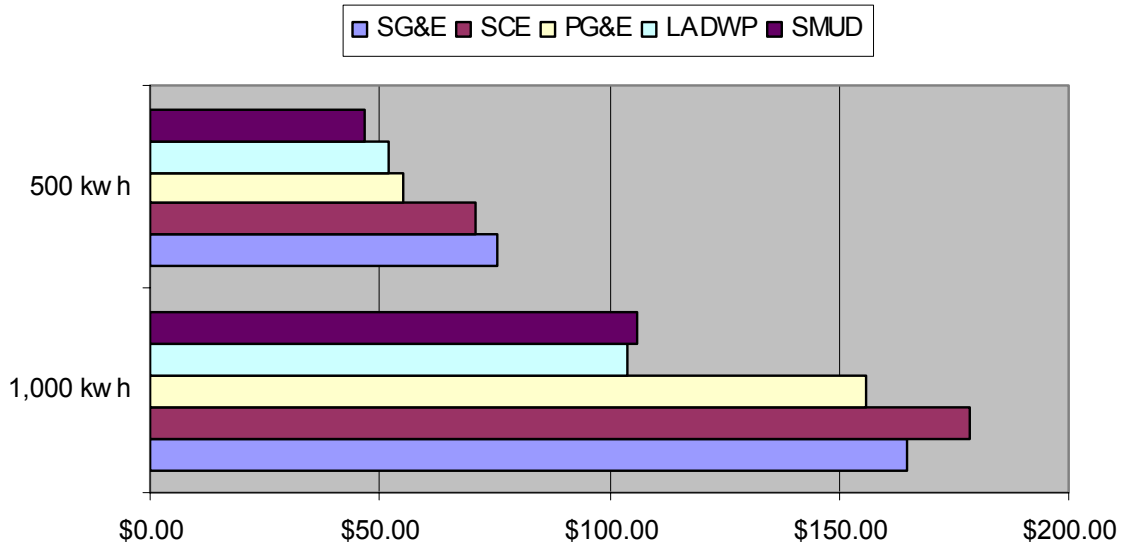
- Repower Basin generation to increase generation efficiency by 30% and provide substantial emission reduction.
- Divest 158 MW of Mohave interest.
- Maintain stable electric rate and transfer to the City.

# Meeting 50% of Load Growth with DSM, DG & Renewable Resources

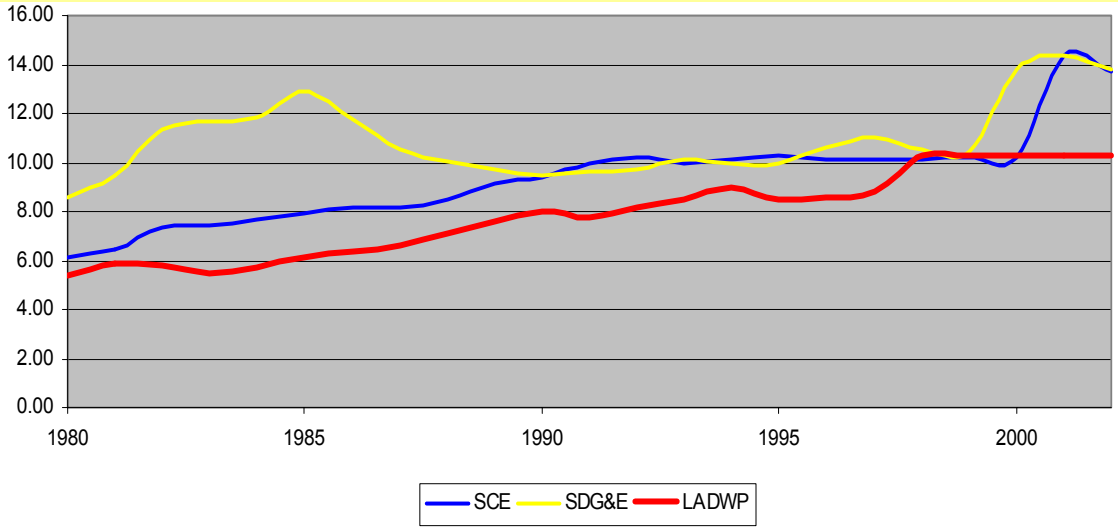


# Low & Stable Electric Rate

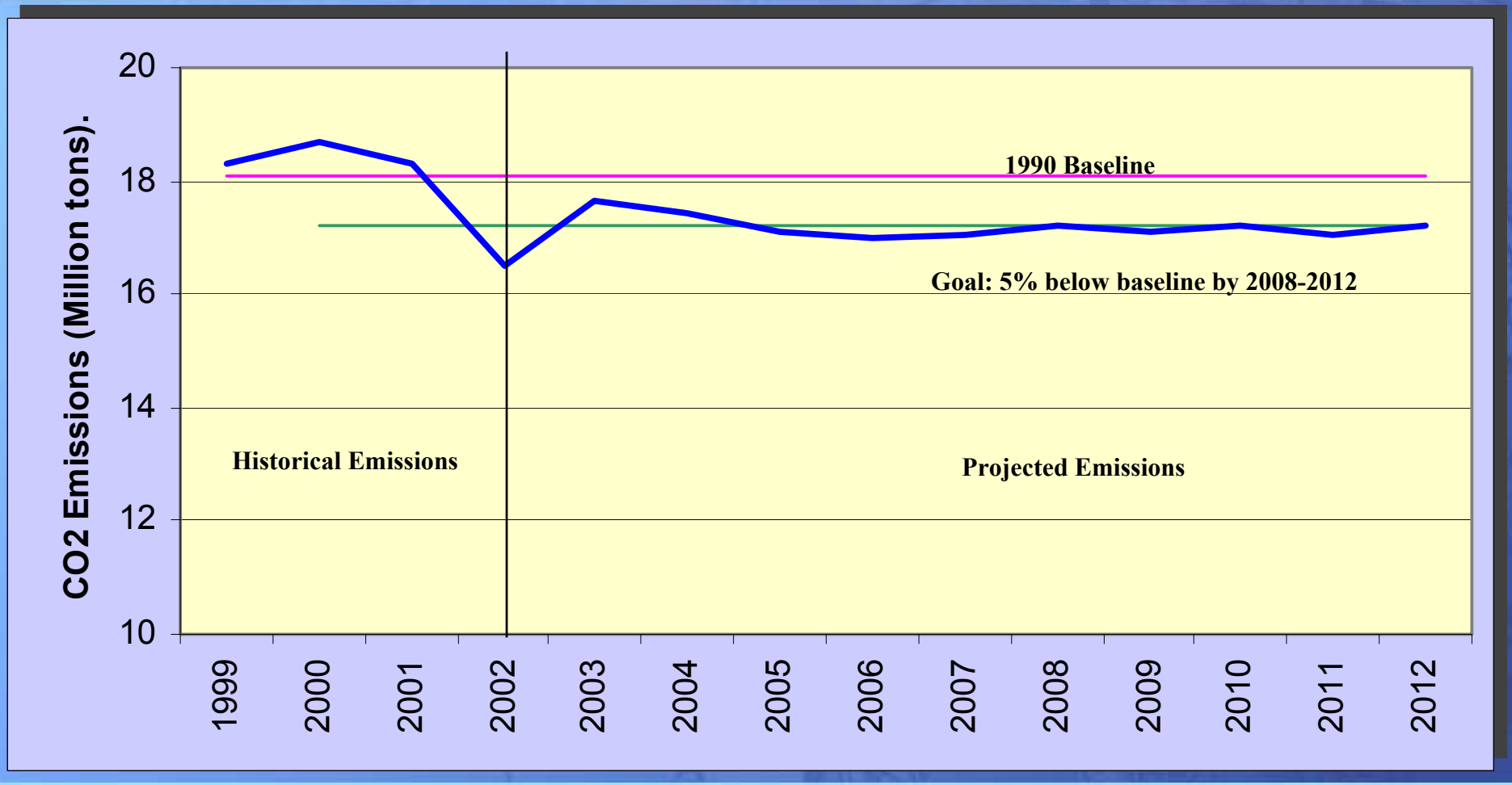
## Monthly Electric Bill ($/MW)



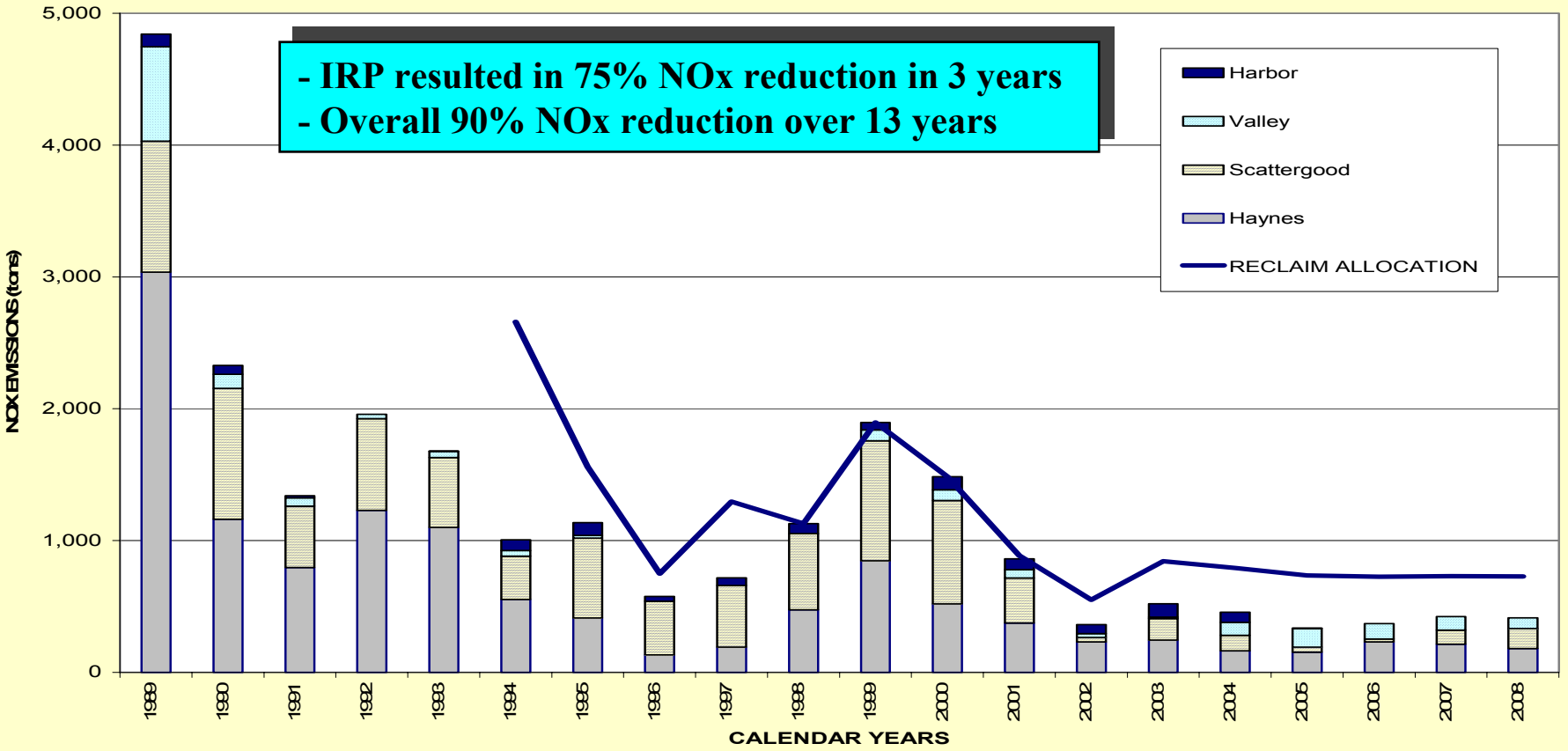

## System Average Rate (cents/KWh)



# Projected Decrease in $CO_2$ Emissions

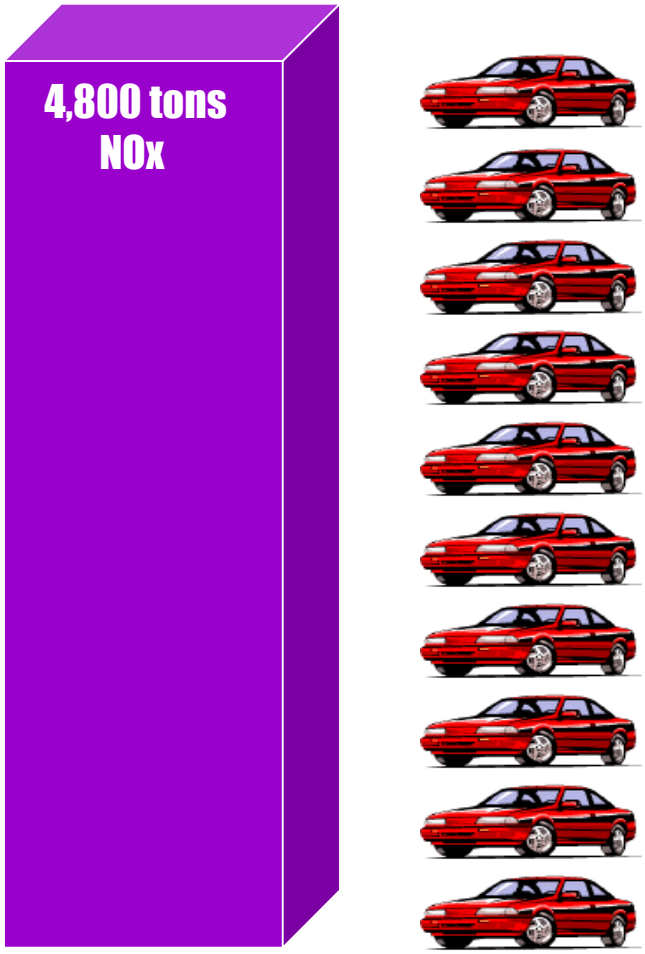


# Basin Generation NOx Emissions



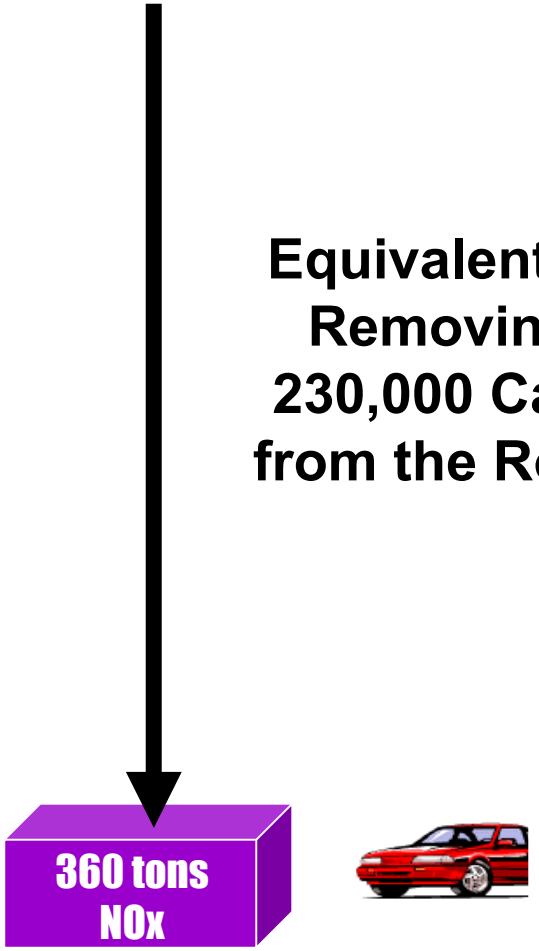
# NOx Emission Reduction

1989




2002

Equivalent to Removing 230,000 Cars from the Road




= 25,000 cars

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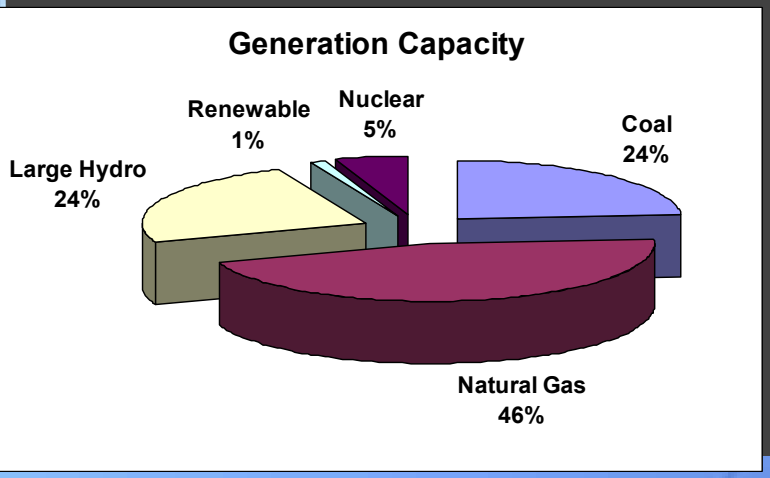
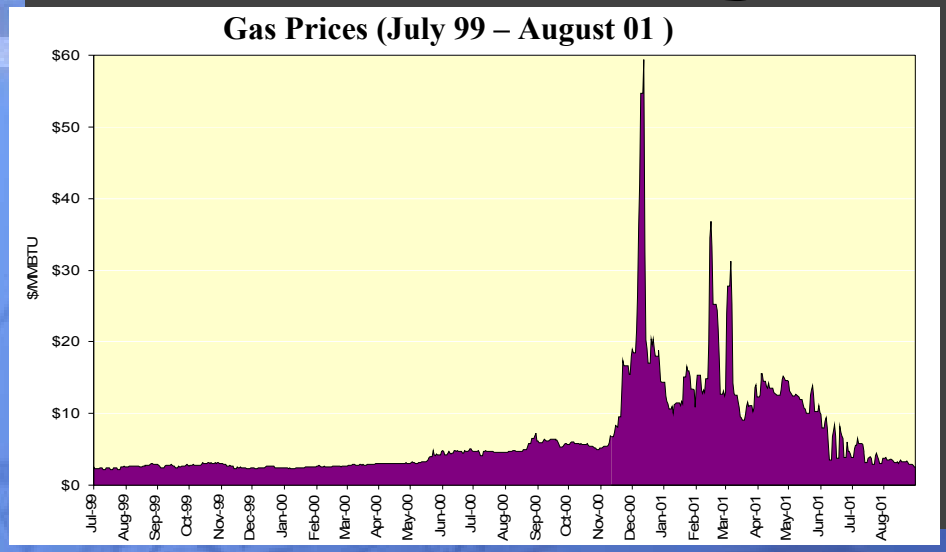
# J.D. Power & Associates Award

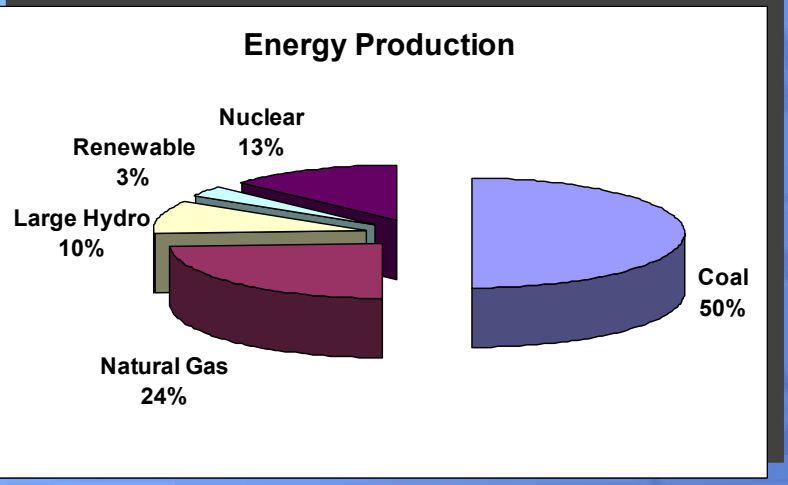
- LADWP ranks first in the Western U.S. in J.D. Power Mid Size Business Customer Satisfaction Study
- Second year in-a-row
- LADWP ranked the highest in several key areas, including: Power Quality and Reliability; Price and Value; Company Image; Billing and Payment; and Customer Service

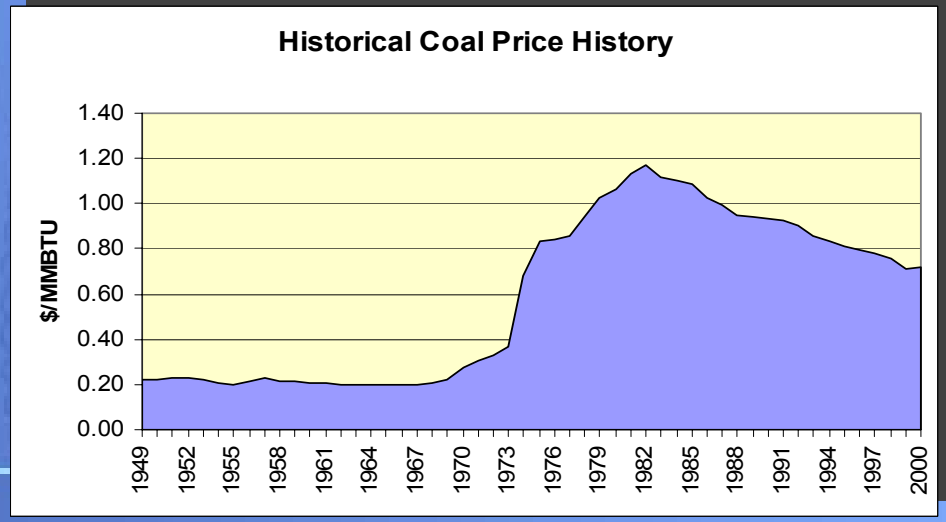
# LADWP Risk Management

# Fuel Price Sensitivity



# Natural Gas Risk Management Program

- Approved by City Council August 2002.
- Purpose is to minimize exposure to price volatility
  - Rate stability
  - City transfer
- Hedge up to 75 percent of annual gas requirements.
  - Financial hedges of up to $15 million/yr.
  - Physical gas

# Coal Resource Risk Management

- Uncertainty of Mohave generation station (158 MW)
- Uncertainty of IPP excess power contract recall (300 MW)

# Consideration for IPP Unit 3

- To extend existing contract beyond 2027
- Permanently set power recall level of the excess power contract
- Replace power loss from excess power contract recall
- Monetize existing “common facilities”
- Establish equity position on Unit 3.

# Considerations of Renewable Portfolio Standard for LADWP

# SB 1078 Renewable Portfolio Standard Program

- IOU's are required to supply 20% of their load from eligible renewable resources by year 2017 (Subject to funding availability)
- Funding for above market costs for renewables are limited to $135 million/year for the three major IOUs in the state
- SB1078 excludes municipal utilities from the 20% requirement

# SB 1078 RPS Program Municipal Application

- The bill does require the governing body to implement and enforce an RPS that "recognizes the intent of the legislature to encourage renewable resources, subject to other critical considerations, such as rates, reliability, financial resources and environmental improvements."

# LADWP Renewable Resource Investments (1)

- Installed 6.7 MW of Photovoltaics, 1.9 MW of microturbines, and 0.95 MW of fuel cells in 2000-2003
- Modernizing the San Francisquito Power Plant 2, a 17 MW hydro plant to be in-service by 2005
- Developing 120 MW of wind power

# LADWP Renewable Resource Investments (2)

- Processing a power purchase agreement for 40 MW from a biomass (energy generation from digestion/biogas) facility
- Assessment of 30 MW of geothermal resource
- Conducting feasibility assessment for 4 MW of small hydro in the LADWP water system
- 10 year, $150 million commitment for solar (photovoltaic) programs

# LADWP Renewable Resource Investments (3)

LOPEZ CANYON MICROTURBINES USING LANDFILL GAS

PINE TREE WIND DEVLOPMENT PROJECT – UNDER DEVELOPMENT

JFB INSTALLED PHOTOVOLTAIC PANELS

BIOCONVERTER BIOGAS PROJECT – UNDER DEVELOPMNET

# LADWP Actions to Achieve Emission Reductions (1)

- Divestiture of Colstrip generating station contract for 105 MW
- Divestiture of 50% of LADWP's ownership in Mohave totaling 158 MW
- Reduction of over 150 MW of peak load demand through conservation and energy efficiency programs since 2000
- Installation of 280 MW of peaking units

# LADWP Actions to Achieve Emission Reductions (2)

- Installed four Selective Catalytic Reduction devices on our large in-basin units
- Four repowering projects to replace 10 in-basin generating units
- The first two repowerings will be in service in early 2004 and 2005
- Repowering will creating over 1000 construction jobs
- "Trees for a green LA" program, with a goal of planting 200,000 trees

# LADWP Actions to Achieve Emission Reductions (3)

- Modernization of Castaic pumped hydro power plant to increase efficiency and reliability
- Modernization of the Sylmar converter station to improve reliability and access to hydro and other renewable energy from the Pacific Northwest
- Initiated Alternative Maritime Power (AMP) Program to reduce emissions from container vessels docked in the Los Angeles Harbor

# Castaic Pump Storage Plant

# Combustion Turbine Peaker Units

HARBOR PEAKERS

VALLEY PEAKER

# Valley Plant Repowering

# Haynes Units 3&4 Repowering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# Future Outlook

# Next Steps

- Develop RPS
- Update IRP with inclusion of RPS
- Approval updated IRP by Board and City Council
- Issue RFP for procurement of new renewables


# Questions

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# Answers


# Thank You!